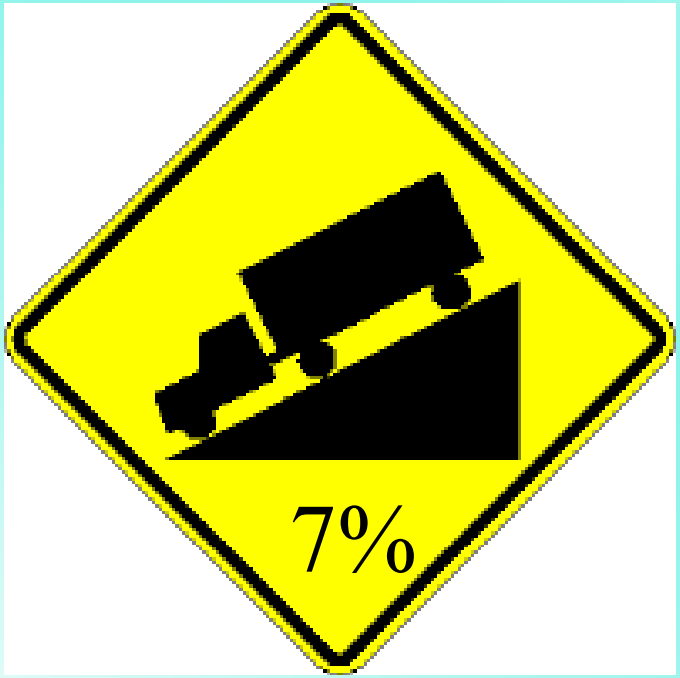
Slope

Finding the Slope of a Line by Counting.

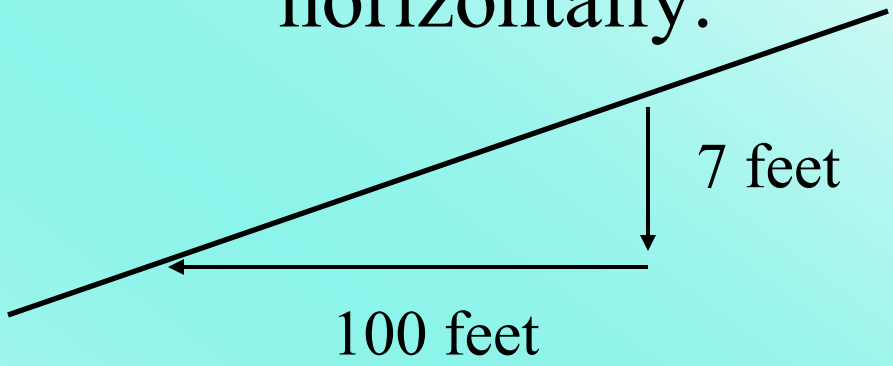
What is the meaning of this sign?

1. Icy Road Ahead
2. ✓ Steep Road Ahead
3. Curvy Road Ahead
4. Trucks Entering Highway Ahead

What does the 7% mean?



7% is the slope of the road.
It means the road drops 7 feet vertically for every 100 feet horizontally.



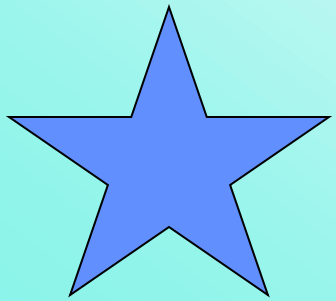
So, what is slope???

Slope is the steepness of a line.

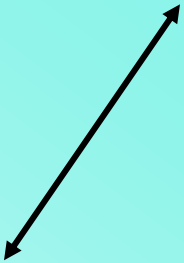
Slope can be expressed different ways:

$$m = \frac{(y_2 - y_1)}{(x_2 - x_1)} = \frac{rise}{run} = \frac{\text{vertical change}}{\text{horizontal change}}$$

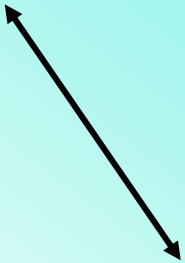
$$m = \frac{rise}{run}$$



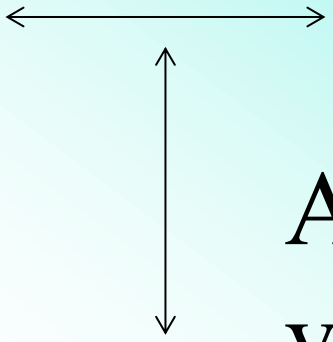
Slope



A line has a positive slope if it is going uphill from left to right.



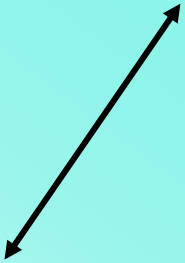
A line has a negative slope if it is going downhill from left to right.



A line has a slope of zero if it is horizontal.

A line has an undefined slope if it is vertical.

Slope



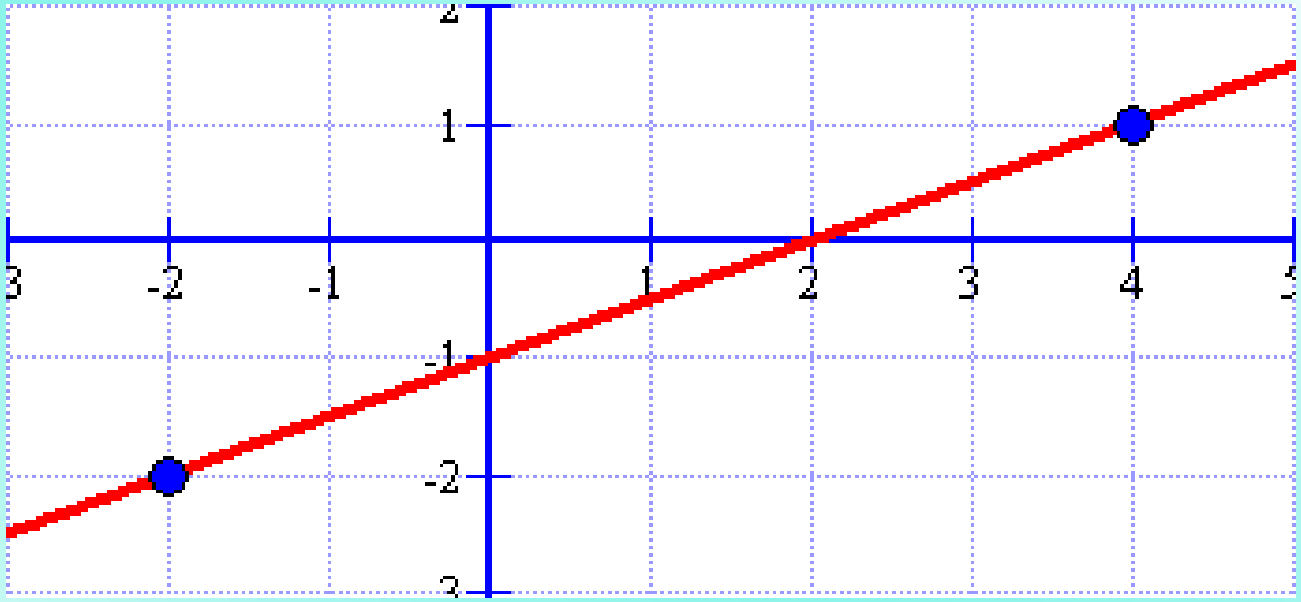
POSITIVE!

NEGATIVE!

ZERO!

UNDEFINED!

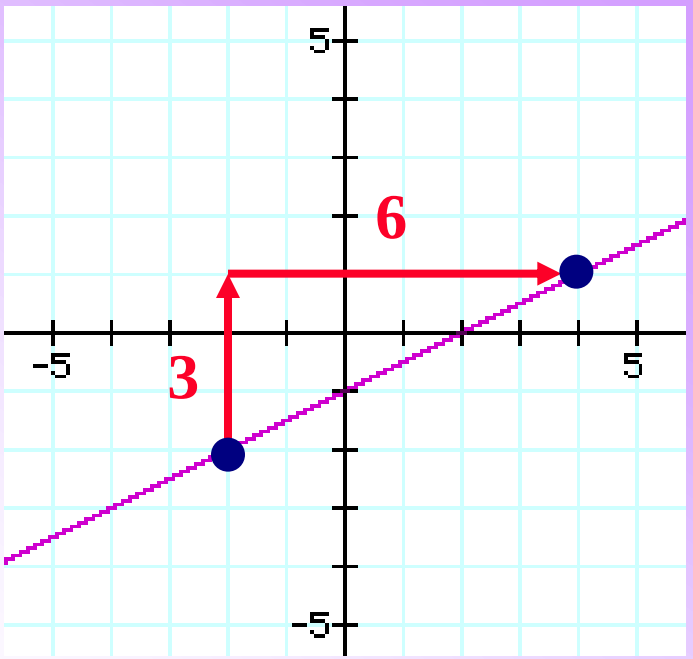
1) Determine the slope of the line.



When given the graph, it is easier to apply "**rise over run**".

Determine the slope of the line.

Start with the lower point and count how much you rise and run to get to the other point!

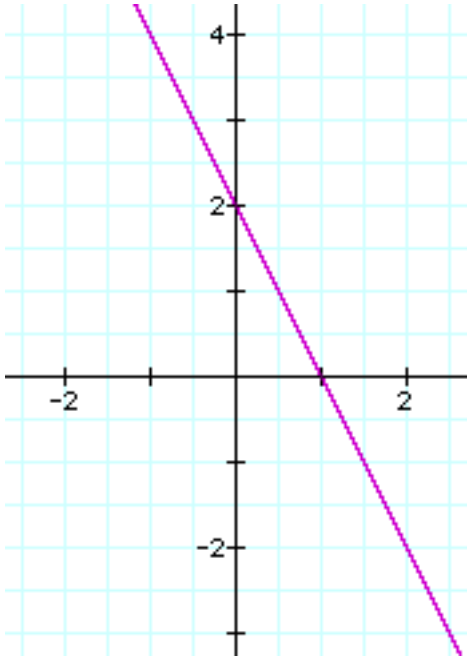


$$\frac{\text{rise}}{\text{run}} = \frac{3}{6} = \frac{1}{2}$$

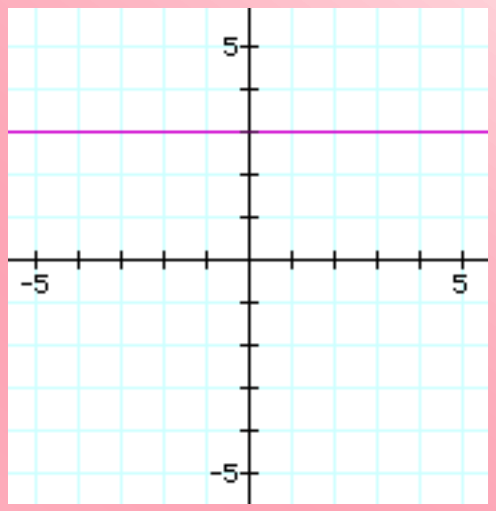
Notice the slope is positive AND the line increases!

2) Determine the slope of the line shown.

1. -2
2. -½
3. ½
4. 2



What is the slope of a horizontal line?

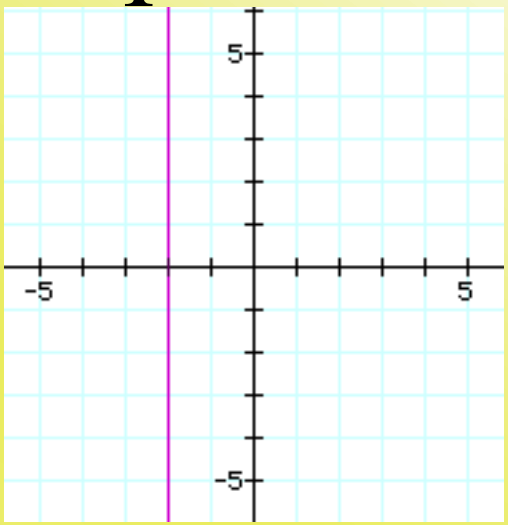


The line doesn't rise!

$$m = \frac{0}{number} = 0$$

All horizontal lines have a slope of 0.

What is the slope of a vertical line?



The line doesn't run!

$$m = \frac{number}{0} = undefined$$

All vertical lines have an undefined slope.

Remember the word "VUXHOY"

Vertical lines

Undefined slope

X = number; This is the equation of the line.

Horizontal lines

O - zero is the slope

Y = number; This is the equation of the line.